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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,185	10/30/2000	Kosuke Inoue	500.39240X00	3560

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EXAMINER

THAI, LUAN C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 10/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/698,185

Applicant(s)

INOUE, KOSUKE

Examiner

Luan Thai

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is responsive to the amendment filed September 13, 2002.

Claims **1-19** have been canceled.

Claims 20-35, newly added claims, are pending in this application.

Abstract

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to ***a single paragraph*** on a separate sheet within the range of 50 to 150 words. It is important that the abstract *not exceed* 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Claim Objections

2. Claims 22-26 and 31 are objected to because of the following informalities: in claims 22-26 and 31, the limitation "said second insulating film" should be changed to – said second insulating layer—. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20-22 and 24-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimoishizaka et al. (6,313,532 of record) in view of Ohashi et al (6,168,872).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 20-22, 24-27, and 29, Shimoishizaka et al. discloses (see specifically figures 1-6) a semiconductor apparatus comprising: a semiconductor device 10 having circuit electrodes 11 aligned centrally of the semiconductor apparatus; a first electrically insulating layer 12 formed on the semiconductor device with the circuit electrodes 11 being exposed from the first insulating layer, a second insulating layer formed on the first insulating layer, external connection terminals; external connection terminal 40 formed on the second electrically insulating layer 20, wirings 31 formed on the second insulating layer to electrically connect the external connection terminals 40 to a circuit electrodes 11, a third electrically insulating layer 50 formed on the second insulating layer and on the wirings, wherein the third layer covers an upper surface and a side surface of the second insulating layer except where the

external connection terminals and the wirings are connected to each other.

Shimoishizaka et al. do not explicitly disclose the second insulating layer containing particles.

Ohashi et al. while related to insulating material design teach particles or fillers (e.g., silica, alumina, silicon nitride, aluminum nitride, boron nitride, titanium oxide, etc.) being added to the epoxy resin composition in order to reduce the coefficient of expansion of an insulating layer for thereby reducing the stress applied to semiconductor devices (Col. 3, lines 5+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Ohashi et al.'s teachings to Shimoishizaka et al.'s device by adding particles or fillers (e.g., silica, alumina, silicon nitride, aluminum nitride, titanium oxide, etc.) to the second electrically insulating layer 20 for reducing the stress applied to semiconductor device.

Regarding claims 28 and 31, Shimoishizaka et al. further disclose the second insulating layer having inclined edge portions, and a gradient of one of the inclined edge portions of the second insulating layer on which the wiring is formed is smaller than a gradient of one of the inclined edge portions of the second insulating layer on which the wiring is not formed (see figures 1-2).

Regarding claims 32-33, Shimoishizaka et al. further disclose the second insulating layer having opposite inclined edge portions, and wherein the inclined edge portion which is nearer to the circuit electrodes than the other inclined

Art Unit: 2827

portion has a gradient smaller than a gradient of the other inclined edge portion (see figures 1-2).

Regarding claims 30 and 34-35, Shimoishizaka et al.'s figure 8(a) further shows the second insulating layer with the wiring formed thereon having an inclined edge portion having a gradient of about 30% with respect to the semiconductor device.

5. Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimoishizaka et al. (6,313,532 of record) in view of Hembree et al (6,456,100).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 20 and 23, Shimoishizaka et al. discloses all the limitations of the claimed invention as detailed above except for the second insulating layer containing particles made of a same material as that of the second insulating layer.

Hembree et al. while related to insulating material design teach the silicon insulating layer 100 (Col. 8, lines 25+) may have silicon particles or fillers being added to (Col. 8, lines 61+, Col. 9, lines 13+) in order to change the modulus of the elasticity of the layer as needed (Col. 1, lines 48+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Hembree et al's teachings to Shimoishizaka et al.'s device by forming the second electrically insulating layer 20 of silicon and adding silicon particles into

Art Unit: 2827

the that layer in to change the modulus of the elasticity of the layer, as taught by Hembree et al.

6. The following reference(s) is/are cited as of interest to this application:

U.S. Pat. No. 6,242,799 to Horiuchi et al is/are cited for showing a stress buffer containing high elastic modulus particles (e.g., silicone resin, polyimide resin, etc.).

Conclusion

7. Applicant's arguments with respect to newly added claims **20-35** have been fully considered, but they are deemed to be moot in view of the new grounds of rejection.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action because the newly added claims 20-35 raise new issues that would require further consideration and/or search. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2827


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is (703) 308-1211.

The examiner can normally be reached on 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Luan Thai
October 9, 2002


DAVID L. TALBOTT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800